

CLAIMS

We claim:

1. An isolated polypeptide comprising an extracellular domain, wherein the extracellular domain comprises amino acid residues 19 to 47 of the amino acid sequence of SEQ ID NO:2.

2. The isolated polypeptide of claim 1, wherein the polypeptide further comprises a transmembrane domain that resides in a carboxyl-terminal position relative to the extracellular domain, wherein the transmembrane domain comprises amino acid residues 48 to 70 of SEQ ID NO:2.

3. The isolated polypeptide of claim 2, wherein the polypeptide further comprises an intracellular domain that resides in a carboxyl-terminal position relative to the transmembrane domain, wherein the intracellular domain comprises amino acid residues 71 to 92 of SEQ ID NO:2.

4. The isolated polypeptide of claim 1, wherein the polypeptide further comprises a signal secretory sequence that resides in an amino-terminal position relative to the extracellular domain, wherein the signal secretory sequence comprises amino acid residues 1 to 18 of the amino acid sequence of SEQ ID NO:2.

5. The isolated polypeptide of claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:2.

6. An isolated polypeptide, comprising an amino acid sequence which shares a percent identity with a reference amino acid sequence selected from the group consisting of amino acid residues 19 to 47 of SEQ ID NO:2, amino acid residues 48 to 70 of SEQ ID NO:2, and amino acid residues 71 to 92 of SEQ ID NO:2, wherein the percent identity is selected from the group consisting of at least 70% identity, at least 80% identity, at least 90% identity, at least 95% identity, or greater than 95% identity, and wherein any difference between the amino acid sequence of the isolated polypeptide and the reference amino acid sequence is due to one or more conservative amino acid substitutions.

7. An isolated nucleic acid molecule that encodes a Zig16 polypeptide, wherein the nucleic acid molecule is selected from the group consisting of (a) a nucleic acid

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molecule comprising the nucleotide sequence of SEQ ID NO:3, and (b) a nucleic acid molecule that hybridizes under stringent conditions to a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:1, or the complement of SEQ ID NO:1.

8. The isolated nucleic acid molecule of claim 7, wherein any difference between the amino acid sequence encoded by the nucleic acid molecule and the corresponding amino acid sequence of SEQ ID NO:2 is due to a conservative amino acid substitution.

9. The isolated nucleic acid molecule of claim 7, wherein the nucleic acid molecule comprises the nucleotide sequence of nucleotides 104 to 190 of SEQ ID NO:1.

10. The isolated nucleic acid molecule of claim 7, wherein the nucleic acid molecule comprises the nucleotide sequence of nucleotides 104 to 325 of SEQ ID NO:1.

11. A vector, comprising the isolated nucleic acid molecule of claim 9.

12. An expression vector, comprising the isolated nucleic acid molecule of claim 9, a transcription promoter, and a transcription terminator, wherein the promoter is operably linked with the nucleic acid molecule, and wherein the nucleic acid molecule is operably linked with the transcription terminator.

13. A recombinant host cell comprising the expression vector of claim 12, wherein the host cell is selected from the group consisting of bacterium, yeast cell, fungal cell, insect cell, mammalian cell, and plant cell.

14. A method of using the expression vector of claim 12 to produce a Zsig16 polypeptide that comprises amino acid residues 19 to 47 of SEQ ID NO:2, the method comprising the step of culturing recombinant host cells that comprise the expression vector and that produce the Zsig16 polypeptide.

15. An antibody or antibody fragment that specifically binds with the polypeptide of claim 1.

16. The antibody of claim 15, wherein the antibody is selected from the group consisting of: (a) polyclonal antibody, (b) murine monoclonal antibody, (c) humanized antibody derived from (b), and (d) human monoclonal antibody.

17. The antibody or antibody fragment of claim 15, wherein the antibody or antibody fragment specifically binds with a polypeptide consisting of amino acid residues 19-47 of SEQ ID NO:2.

18. An anti-idiotypic antibody that specifically binds with the antibody of claim 17.

19. A method of detecting the presence of *Zsig16* RNA in a biological sample, comprising the steps of :

(a) contacting a *Zsig16* nucleic acid probe under hybridizing conditions with either (i) test RNA molecules isolated from the biological sample, or (ii) nucleic acid molecules synthesized from the isolated RNA molecules, wherein the probe has a nucleotide sequence comprising a portion of the isolated nucleic acid molecule of claim 9, or its complement, and

(b) detecting the formation of hybrids of the nucleic acid probe and either the test RNA molecules or the synthesized nucleic acid molecules,

wherein the presence of the hybrids indicates the presence of *Zsig16* RNA in the biological sample.

20. A method of detecting the presence of *Zsig16* in a biological sample, comprising the steps of:

(a) contacting the biological sample with an antibody, or an antibody fragment, of claim 15, wherein the contacting is performed under conditions that allow the binding of the antibody or antibody fragment to the biological sample, and

(b) detecting any of the bound antibody or bound antibody fragment.

21. A fusion protein, comprising amino acid residues 19 to 47 of SEQ ID NO:2.

22. The fusion protein of claim 21, further comprising an immunoglobulin moiety.